

ITS Field Operational Test Summary

Travel Aid

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Introduction

The Travel Aid ITS Field Operational Test intends to improve safety and reduce accidents for travelers crossing the Snoqualmie Pass along Interstate 90 north of Seattle, Washington. The test will achieve this goal by transmitting suggested speed limits and traveler advisory messages to variable message signs (VMS). The Travel Aid system broadcasts advisories throughout the 40-mile length of freeway included in the Travel Aid test.

Field testing is currently underway. A final evaluation report is expected in September 1998.

Project Description

Accident data has shown that the accident rate on I-90 across Snoqualmie Pass in January is 12 accidents per 100,000 vehicles; during July the rate is 1 accident per 100,000 vehicles. During winter, snow, ice, fog and other weather extremes make driving more difficult than at other times. The traffic mix over the Pass in winter months includes recreational travelers traveling to and from the various wintertime recreation destinations, as well as a significant number of tractor-trailers. The trucks must proceed at reduced speeds when climbing or descending the Pass. During inclement weather, snow removal equipment is out in force to maintain the roadway. The Washington State Patrol and Washington State Department of Transportation maintenance staff have indicated that many accidents are caused by drivers traveling too fast for the prevailing weather and traffic conditions. The result is a very high winter season accident rate.

The goal of the Travel Aid test is to reduce the frequency and severity of accidents on Snoqualmie Pass. The test focuses on the winter weather season, but is applicable to any time of year, since weather and driving conditions are unpredictable and can be severe due simply to the elevation of the Pass.

Travel Aid transmits speed limit information and traveler advisory messages to variable message signs (VMS) [State police have issued citations to motorists exceeding the speed limit posted on the VMS.] The Travel Aid system provides three types of information to a software-based algorithm that generates suggested speed limits for vehicles. Radar detectors gather average vehicle speed data. Sensors embedded in the pavement determine pavement conditions. Weather stations record information including wind speed, temperature and precipitation. Figure 1 presents the design overview of the system.

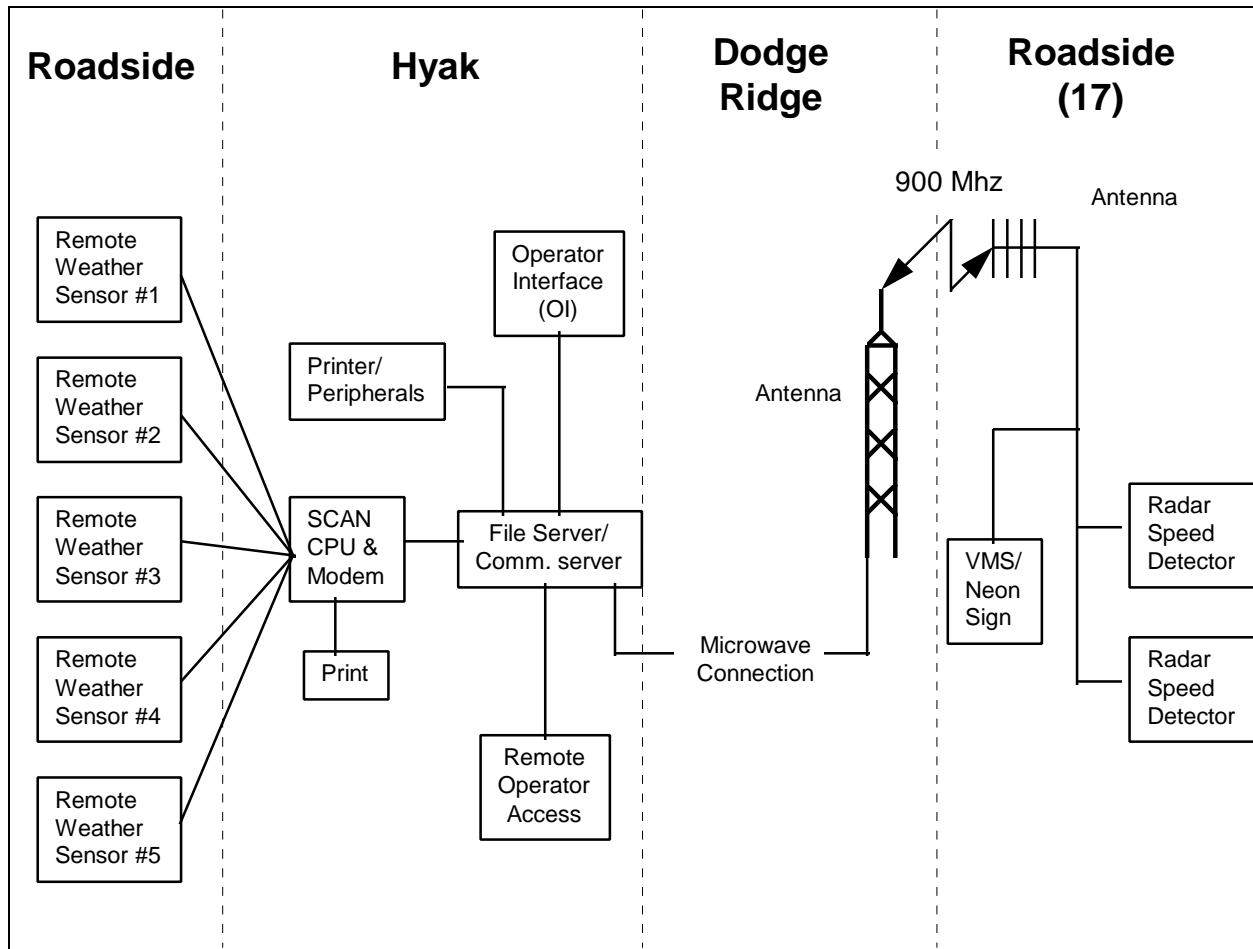


Figure 1: Travel Aid System Design Overview

This information is synthesized and processed in the central Travel Aid file and communications server at the operations center in Hyak. The computer algorithm suggests a speed limit and the Travel Aid operator reviews it. If the operator concurs with the limit, he transmits traveler advisory messages to the variable message signs (VMSs) and in-vehicle units. This transmission occurs via radio and microwave.

Test Status

The test is underway and test personnel are collecting evaluation data. No interim results are available.

Test Partners

Federal Highway Administration

General Logistics

PB Farradyne

University of Washington

Washington State Department of Transportation

References

Senn, Larry L. and Bjorge, Eilert; ITS Field Operational Test Contracting: Avoiding Surprises